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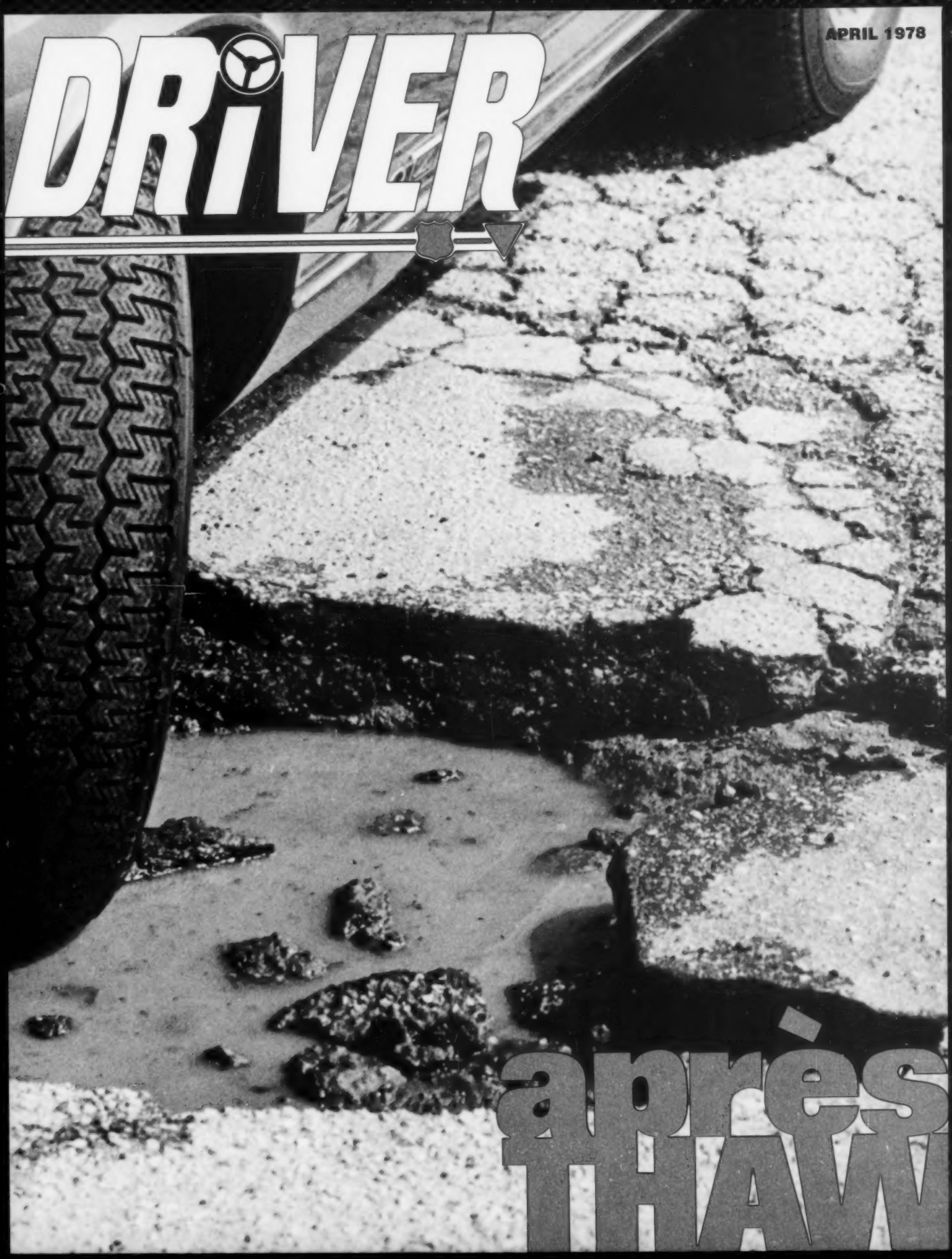
APRIL 1978



après THAW

DRIVER

After the Thaw

Just because it's spring and the ice has finally melted out from under your fenders, that doesn't mean the nasty weather is over until December. There will be an occasional freeze, and those freak, sloppy-wet snowstorms can happen even in May in some parts of the country. And how about rain?

Okay, so we can't do anything about the weather itself, but we can prepare for it and cut down on unpleasant surprises during the spring and summer months. These surprises are the weather conditions for the annual Spring and Summer Auto Olympics. The events in the SSA Olympics can stand your hair on end, if you're not ready for them.

In November, we told you about the hazards of winter driving. Driving the rest of the year may not be as hazardous, but there are problems you should be prepared for. Admittedly, preparation for winter driving is more important. But if you don't service your car in the spring you shouldn't be surprised at the amount of work to be done in the fall. It's easier to catch it now. What was that old saying about stitches . . .?

Getting In Shape: Winter weather, and man's efforts to overcome it, may have done some damage to your car. You'll want to take care of that damage now. So come on, let's get with it.

First, you should check for any damage caused by salt. Salt is one of the most common weapons used on the roads against ice and snow. It reacts readily with ice and melts it. It also reacts readily with automobile paint and corrodes it.

End result: Rusted metal. That's why you see so many cars with rust spots around the fenders in areas where salt is used to combat ice. Ditto in seacoast areas, where salt spray will do paint in.

Ah, but salt is sneaky! It'll do more than corrode paint. It'll wipe out your hoses, your fanbelt, your underhood wiring . . . Salt is largely omnivorous – it'll eat anything. So give the car a thorough check, over, under, inside and out. Replace any belts or hoses that have had it. Note we said "under." The beating the car took from winter may have resulted in a rusted muffler or exhaust system. Be on the lookout.

A good washing, on a regular basis,

continued

You say it seems like years since it's been clear? Well, treat your car like it has, and get it ready for spring and summer driving.

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
Norton Air Force Base, California 92409

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APR

VOLUME 11 NUMBER 11

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THE EDITOR SPEAKS DOUBLE CLUTCH

"SPEED KILLS!"

"Speed Kills!" is an old traffic safety slogan we don't hear much anymore. But traffic safety specialists emphasize that speed "too fast for conditions" is still the number one cause of accidents.

How do we try to get drivers to slow down? First, by education. Second, by enforcement—issuing tickets. There are other ways to control speed, of course. Mechanical and physical restraints. J. Herman Mattson discusses some of them in the current *California Highway Patrolman.*

Sound Control could be accomplished by installing a siren which would blast off whenever the vehicle exceeded the speed limit (now 55 mph). The blast would be loud and unpleasant, and truck sirens would sound different from car sirens. The idea here is not just to alert police to a speeder but to warn other motorists of a driver who is drunk, drugged, demented, or just plain in a hurry.

Sight Control would consist of two lights on the back of every vehicle, two in front, and two on the dash. The front, rear and dash lights on the left side would light up whenever the vehicle was going over 25 mph. The ones on the right side would be activated whenever the speed was over 35mph. Since these two speeds meet the major speed controls in most urban areas, it

continued on page 7

In fog, visibility can drop off to nothing in less than 100 feet—and sometimes you can't see beyond your hood.

will keep the salt monster away, by the way.

Then there are some obvious chores, like removing the snow tires and that kind of thing. But listen up; you might learn something.

When you take the snow tires off, mark them in some way so you'll put them on the same side next winter. That's important in maintaining tread life.

While you're at the tires, check them all for cuts, cracks or bulges. And tread. Good tread is very important for certain driving situations you may encounter in the Spring and Summer Auto Olympics, which we'll get to. Bald or damaged tires are an invitation to a blowout, or worse.

Change the windshield wiper blades if they're shot. Winter driving causes you to use them a lot, but spring and summer driving may require them even more. And fill up the washer solution reservoir. This is a good time for mud and dirty water.

And then there's the inside of the car. When was the last time you cleaned it out? You'll be amazed what you'll find – bottle caps, bags for french fries, old magazines, maybe even *money*. And while you're in there, you might think about washing the seat belts. Yeah, that's what I said. A solution of warm, soapy water will get out the road grit and salt (yes, again) that might otherwise shorten the life of your trusty harnesses. (You *do* use them, don't you? Good, good.)

Without the headlights, there may be no way to tell where another car is.

And now for the spring tune-up. A tune-up is a good idea twice a year. Get a minor tune-up with attention to having the choke re-adjusted. Your car will run smoother and, perhaps more important to you, cheaper. And change the gas filter too. Contaminants that your gas tank picked up during the winter may have clogged the filter. Don't worry; they're cheap.

Winter also does no good for your front-end. Remember those roads with the bumpy covering of ice, or the roads with the crater-sized holes in the blacktop from freezing and thawing? Have the front wheels aligned. If the front end is out of alignment, your front tires will wear unevenly, and they'll wear out faster. A front-end alignment is much cheaper than a new pair of steel-belted radials.

Spring is also a good time for a lube. Remember, all this close inspection of the car will bring to your attention anything that needs to be fixed.

And now's the time for servicing your air conditioning system, if it needs it. The earlier in the year you have this done, the better, while the winter rates are still on.

By now you should be in good shape to handle the events in the Spring and Summer Auto Olympics. There are three main events in the SSA Olympics – Driving in Fog (or "Flying Blind"), Driving in Rain (or the "Automotive Breaststroke") and Hydroplaning (or "Automotive Waterskiing"). The last is a special event, open only to a select group who mishandle Driving in Rain.

Flying Blind: Remember the old sack race – that picnic game in which you

continued

Passing vehicles can spray you with water and mud. Have your wipers in good working order, and the washer reservoir full.

and a bunch of other nuts hopped toward a finish line with your feet in gunny sacks? Imagine how much faster you could have gone if you'd put the sack over your head. Imagine also the strong possibility that you would have bashed your head into a tree.

This brings us to the Driving in Fog event in the SSA Olympics, because there are similarities between the guy with the sack over his head and the guy driving in a thick, peasoup-type fog. Like, neither one of them knows where the heck he's going.

Fog is one of those situations when a bit of cowardice may be a good thing: "You're not gonna get *me* out in that!" Or maybe paranoia: "They're out there to get me." (You could be right. "They" – trees, guard rails, other cars – might be.)

Is This Trip Really Necessary?: Getting serious for a moment, if you can't see where you're going, driving is dangerous, to say the least. So when severe fog is forecast, if you don't *have* to go anywhere, delay your trip.

However, sometimes the trip really is necessary, or you might find foggy conditions unexpectedly. So read on and we'll help you prepare for the worst.

Fog is simply a cloud that is close to the ground. But driving through one of these clouds is anything but simple. Try the sack-over-the-head routine, and you'll get an idea.

It isn't always that bad, but fog is tricky stuff. You might be driving along through a fog bank with three hundred feet of visibility, and suddenly find yourself in a particularly thick spot, with three feet of visibility beyond your headlights. Great amounts of not fun!

What should you do then? Well, first, slow down. If that sounds obvious to you, good. There are a lot of people out there who don't seem to realize that, or maybe they're just suicidal. If your headlights suddenly went out at night, you'd slow down because you couldn't see. The same goes for driving in fog. You don't know what's ahead, even if you drive that road every day. Even if you *built* the road.

Visibility in fog can be as bad as – or worse than – visibility in heavy rain or a ground blizzard. And that can make it dangerous, unless you take fog as a serious hazard. That light, fine mist just doesn't look dangerous, but it can be.

You can't "fly on instruments" in your car, so if you can't see at all, it would be a wise move to get off the road entirely – the farther, the better. While you wait for the stuff to lift, have your emergency flashers on to announce your presence to other drivers, and you might honk your horn occasionally.

While you're driving you want to see and also *be seen* if you want to avoid an accident. So turn on your headlights, and keep them on the low beam. The low beam is so called because it is aimed lower. Your high beams have a wider angle and enable you to see farther in clear weather. But in fog the high beams will bounce off the zillions of water droplets and reflect back at you, which won't do you a whole lot of good. So low is better.

While we're on lights: if you live in an area noted for frequent foggy days, you may want to think about purchasing a pair of fog lights to mount on your car.

The idea of keeping distance between cars is especially important in fog. However, it isn't easy when you can't see them clearly. That's why driving slowly is so vital – it gives you more time to react in an emergency.

Passing another car in fog may not be the wisest maneuver. If you can see far enough ahead to complete the passing, okay. But remember, fog moves, and it can thicken unexpectedly. Be *sure* you have the time and the space before you go. If someone tries to pass you, help him along if necessary by slowing down to give him room.

As if that outside stuff weren't bad enough, the moisture will build up on the inside as well and fog up all the windows. Run your defroster to keep the windows clear, and turn on the windshield wiper occasionally to take away the mist that may build up on the outside.

So how do you win in this event? Not by the fastest time, like in marathon races and downhill skiing. The winner in Driving in Fog is the guy who makes it to his destination in one piece, with his car unscathed. and that may mean the *slowest* time.

Treading Water: Your car can't swim, but it can tread water. The key

continued

If you have to go through a pool like this one, do it very slowly with one foot on the brakes to keep them dry.

But here, (left), it'd be wiser to find a different route to wherever you're going.

windshield wipers in good working condition. Old, cracked wiper blades will not clear the windshield evenly. Your car will be hit with water and spray from passing cars, and good wipers will clean it off quickly. Keep your washer reservoir filled, to handle the dirty water and mud that comes after the rain.

Heavy rain can wash out roads, or submerge them. Driving through foot-high water or a puddle that's a little

(above)
Sometimes, on an overcast day, on a wet road, you can't even see the lines separating the lanes. Be careful not to stray out of your own.

(near right)
Any maneuver, from stopping to a lane change, could be disastrous when the car is hydroplaning.

(far right)
Given enough speed, our friend in the sedan could easily go hydroplaning with this amount of water. "Slow" is the magic word.

word here is "tread." You may or may not know it, but tire treads do not provide traction on dry roads. On a dry surface you'd get much better traction from a racing slick. However, if you wet down the road, it's a totally different story.

The treads on your tire provide the traction on a non-ideal surface, in this case water. The treads form small channels through which the water on the road can flow as you roll along. This keeps the rubber in contact with the road – unless you go too fast. Going too fast will put you in the final event in the Spring and Summer Auto Olympics – Hydroplaning. We'll come to that later.

But for right now let's assume you're interested in competing in the Driving in Rain category. So, like the Driving in Fog event, the first rule is to drive slow.

Rain is not fun to drive in. It's difficult to see where you're going, especially in heavy rain. The roads are very slick. It's sometimes hard to see lane dividers on wet pavement. And have you ever been on a street or highway after a rain shower and been passed by a semi and splashed with enough water to wash three cars? If you didn't have your windshield wipers on you probably knew a moment of fear that you might be going into another guy's lane.

So you've got to be alert, and cautious. Once again, that means driving slower than you would under ideal conditions. Slow down as soon as it begins to rain. Even a light rain will mix with dust and oil on the road to make a slick surface.

Stopping the car and any maneuvers – turns, lane changes – will be trickier on a rain-slicked road. If you slow down and allow yourself enough time and space in which to maneuver you'll have no problem. What constitutes "enough" is a judgment you'll have to make. To be safe, you should make your decision on the side of *more* time and space than seems absolutely necessary. You should not be in a hurry to get anywhere; better to get there late and in one piece.

As we mentioned, rain reduces the visibility. This is the time to have the too deep can wet your brake linings and make them almost useless. If you find you've lost some braking control for this reason, you can dry the linings or pads by driving slowly with your foot on the brake pedal. The best course is to avoid deep water, or if you can't avoid it, drive through it very slowly. And while you're going through, apply slight pressure to the brakes to keep them from getting wet. It may take a little coordination but it can be done. Practice on a dry road sometime.

Is It a Bird? NO! It's a Hydroplane!: You've seen a hydroplane – that's the kind of speedboat that seems to be flying over the water, rather than plowing through it. For your car, the word "hydroplane" becomes a verb, and the last event in our SSA Olympics.

Hydroplaning occurs when the entire weight of the car is supported by a thin film of water. As we mentioned, the tire treads are designed to channel water out from under the tires and prevent skidding. On a wet pavement, water pressure builds up under the tires and lifts them off the road. At a certain speed, the contact between the tires

and the road is broken and you're hydroplaning.

There is also a condition of partial hydroplaning, in which the car is partially supported by the water. This is every bit as dangerous. Either way, you could be in a car that is totally out of control.

The variables in hydroplaning are auto speed, amount of water on the road, amount of tire tread, and air pressure in the tires. The more water and speed, and the less tread and pressure, the more likely you are to hydroplane. So, at 80 miles per, with ¼-inch of rain

on the highway, and with bald, underinflated tires. you can expect to really sail. Probably off the road.

Slipsliding Away: You can be hydroplaning without realizing it, and this is what makes the event so dangerous. You could be driving along a wet road without a care, and then try to pass another car and watch in amazement as you skid clear across the road and off the shoulder.

There are formulas for calculating the speed at which you will begin to hydroplane, given the conditions on the road. But it's difficult to use your sliderule or electronic calculator while you're steering the car, so keep one thing in mind. Yep, you guessed it – drive slowly. When the pavement is wet, even if it's just an occasional puddle, you're wise to slow down.

There's no way to win the Hydroplaning event, so it's best not to enter.

Don't despair, fearless wet-weather driver. One of these days you'll be able to say, "I can see clearly now, the rain is gone. It's gonna be a bright, sunshiny day." Break out the suntan oil!

how it HAPPENS

SP5 Bill Bored is driving across the country to see relatives. He has been on the road for 11 hours, and he had only five hours sleep last night. He decides to stop for coffee before driving the final 250 miles. Upon entering the off ramp from the highway, he hits a median with the left front wheel and ricochets across the ramp, flattening his right front fender, and a good portion of his engine, on the guard rail.

SP5 Bored should have:

1. Visited his girlfriend instead.
2. Taken someone along to spell him occasionally.
3. Stopped for rest at least two hours ago.
4. Been very careful when leaving the highway.
5. Taken the bus.

While any one of these choices would have spared him, the best ones are 2 and 3. Driving while fatigued is just asking for trouble.

continued from page 2

DOUBLE CLUTCH

would give traffic officers and other drivers visible evidence of conformance to speed limits.

Governors on every vehicle would limit top speed to the legal maximum. A vehicle could travel faster than the governor permits (coasting downhill for instance) but then the siren would sound off. Mattson says if a driver knew his speed was under mechanical control, he might hesitate to put his vehicle in a situation where a burst of speed would be necessary to avert an accident. Mattson claims many accidents occur now because drivers count on power and speed to get them out of a tight situation rather than slowing down and staying out of the situation in the first place. He admits these controls would be irritating, frustrating and bothersome but says that's their purpose. Constant reminders would keep everybody alert, less preoccupied on the road. (All those sirens and lights might be kind of nerve-jangling, too).

Well, heaven forbid that this is the way we're going! But Mattson makes one very telling point. Last fall, 150 people burned to death in a Kentucky nightclub fire. Every newspaper, TV and radio station covered the story. The entire nation was shocked. Yet, during that same week, *seven times as many* people died in traffic accidents and 40,000 more were injured. That's mighty shocking too, but unless you read the traffic safety journals you never even heard about it!

MUSH!

BREAKING TRAIL To Knik Glacier

It's morning, but the sun won't appear over the Chugiak Mountains for several hours yet. This is deep winter in Alaska, so it's cold as well as dark. When the sun finally rises at 9:30, there will be about five hours of daylight before night falls again. But these people in heavy clothing clambering around their convoy of four-wheel vehicles are as full of enthusiasm as if they were taking off for some Florida beach party. What they're about to do is travel 90 miles up and down icy tundra and through frozen river beds. It's their idea of fun.

The Alaska Four-Wheel Club is setting off for Knik Glacier, 45 miles east of Anchorage. There are seven vehicles in the convoy and the drivers are accompanied by family and friends, children as well as adults.

Each month the Alaska Four-Wheelers make a trip to a scenic location or major point of interest. Under the club's charter, members take turns picking the destination and the member who plans the trip also takes the lead position. Winter trips are limited to a 75-mile radius for safety's sake. The December trip to Knik Glacier has been arranged so that the Club will be positioned on the banks of the Knik River soon after sunrise. The convoy heads east on one of Alaska's major highways, stopping in the city of Palmer to top off gas tanks and fill extra jerry cans at the last service station on their route. To reach the area, the trucks, jeeps, and other four-wheel machines will have to travel over a frozen river, through a valley of tundra frozen by winter winds, and around thick willows that guard the passage to Knik Glacier.

After passing through the last community they will see until their return, the four-wheelers come to a rough road – little more than a trail – which presents the drivers with their first challenge. They must work their equipment over large ruts and around pot holes created by logging trucks the summer before.

Slowly each machine progresses along the road until the convoy reaches a small knoll where a break in the trees reveals the banks of the river. Day is breaking as the off-road machines proceed single-file down the side of the river. Now the leader decides it is time for a short break while the club membership decides which will be the best direction to travel.

Several of the club members made this trip to the glacier a few years earlier, and they say the best route to travel will be along the banks of the river until they find a place to cross the frozen river bed. Plans are made and everyone piles back into the four-wheel rigs and away the club goes looking for a solid ice bridge to cross. The leader of this run pulls into the lead and the other machines slow down and take their in-

continued

Photos and Story by
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Elmendorf AFB, Alaska

ALASKA

Anchorage

continued

(left) **The lead jeep** that broke through the ice while trying to cross the Knik River. (right) **Mel Fergonson and Bill Berry** trying to get a snatch rope hooked to the frame of the jeep stuck on the river bed.

dividual positions in the convoy. The guide this month scouts for the safe passage and is followed by another member who has a winch attached to the front of his rig so he can pull the leader's machine out quickly if it falls through the ice.

With the temperature reading at 28 below zero, the caravan zips along the side of the river. The leader looks for a place to cross the ice. After progressing several miles, the lead four-wheel rig drops through the ice. In less than a minute the second machine is pulled into position behind the one stuck in the broken ice. Out jumps Technical Sergeant Russell Ray. He uncoils his heavy-duty winch and hooks it to the frame of the stuck jeep. The downed four-wheel rig is jerked out of the stream and backed away from the freezing river.

A few of the club members get together and discuss the lay of the valley. Soon there is general agreement that the safe route of travel will be to work slowly up the river for another couple of miles until they find a shallow gravel river bed that is frozen over.

The lead driver takes a few minutes to insure that his brakes have not frozen solid, and then the seven vehicles start advancing towards their goal. Just as the sun reaches the center of the sky line, the lead jeep comes to a complete stop and the driver gets out and walks to the edge of the bank of the river and out on the ice to check its thickness. Soon he returns to his machine and starts creeping across the glassy field of frozen water. Within minutes he is

David Shelton, a USAF sergeant, watches as one of the four-wheel vehicles is pulled across a stream.

Young Andrew Ray pops out of his father's Blazer to watch the Four-Wheelers work several rigs across some rough ice.

Miss Jonna Shelton looking over the Knik River and valley as the Alaskan Four-Wheelers decide which will be the best route to take when heading towards the glacier.

David Shelton and Russell Ray changing a tire on the way out of the valley.

across and headed up the opposite bank and approaching the first thicket of willows. Six other four-wheelers slow down and cross Mother Nature's frozen bridge. The first obstacle has been passed and a line of machines can be seen working its way back and forth through the willows.

Suddenly, one, then two of the vehicles in the caravan come to a complete stop as several of the four-wheel units at the back of the line falter in the snow drifts. One of the lead drivers turns his Blazer around and heads back to the location where the others are stuck. Instead of using his motorized winch, Russell Ray hooks on a snatch rope. The rope is attached between the vehicle doing the pulling and the frame of the machine that's immobilized. As the Blazer is backed away from the stuck vehicle, the snatch rope becomes tight and forces the other machine out of the drift. One of the drivers, Captain George Clemons, says this about the use of the snatch rope: "I watched the jeep in front of me get stuck and I knew I wasn't going to make it through the drift. So I drove my machine as far as I could and had Ray hook onto my Toyota. The rope doesn't winch you out. It forced my vehicle, thus retrieving me from the snow bank."

One after another, all of the four-wheel rigs are freed of the frozen snow and back on solid ground.

After checking on all of the rigs in the convoy, the club leader heads towards an old wagon road. As the other machines follow, the driver in the lead takes his jeep around a batch of trees and starts to cross a small creek that has a high bank on the opposite side. Placing his jeep in low four wheel, the

continued

The Alaskan Four-Wheelers heading across the frozen Knik River.

continued

One of the vehicles with a winch crosses a rough river bed to pull the other machines across. Russell Ray guides the vehicle's driver over the difficult spots.

The lead jeep climbing the first knoll on the way to Knik Glacier.

driver attempts to cross the creek and climb up the other side. But just as he is about to reach the top of the opposite bank, the rig he is driving slides back into the stream and becomes stuck against the bank.

Several attempts are made to pull the jeep backwards out of the stream. The four-wheel unit is stuck on the bed of the creek and help is summoned to find another location to cross. A driver of one of the bigger rigs finds an opening in the trees farther up the stream and makes a rough crossing. The rig crashes off one bank and bounces up the other as the driver manhandles his equipment into position to winch all the club across the steep banks of the stream.

While all the four-wheelers are working their way across the stream and up the steep banks, passengers waiting on the drivers to make the crossing have a chance to get together and talk about the trip while the children play. Soon all of the machines are across and everyone is ready to go. The four-wheel rigs form into a single file and a cloud of exhaust forms behind the convoy as it works its way towards the end of the valley.

Within a half hour all the vehicles are out in the open and traveling across the frozen Knik River, with a splendid view of the glacier before them. At one point, the leader of the convoy stops and asks one of the other club members which angle of the river is the best to follow when trying to get to the summit of the glacier. After talking about several different routes to take, the lead jeep moves out and heads towards a

Vehicles and members of the Four-Wheelers Club at Knik Glacier.

small knoll off the side of the river. One by one the four-wheel rigs are worked over the knoll and up on a small ridge leading west. Within seconds the wheelers come to the end of the ridge and gear their machines down to climb up a series of outcroppings. These outcroppings are actually hills that were created with steep ridges covered with boulders, small brush and snow drifts six to eight feet deep. Each vehicle crawls up one ridge, back and forth around the big boulders, and across the frozen snow drifts.

After a series of six ridges, the lead jeep decends into a small valley and forges a trail to the edge of a hill that drops off into the lake created by summer waters melting from the glacier. Each four-wheel unit progresses to the summit above the lake and stops. One by one the passengers of these machines jump out and walk to the edge to get an excellent view of the glacier and a beautiful view of the valley they just crossed. The adults take pictures and eat lunch while the children play. All this in the sub-zero weather!

The valley protecting the glacier is not large and soon the sun is shining only on the tops of the mountains. Everyone has returned to his individual vehicle and all prepare to head back the opposite direction from which they came. It will take the better part of three hours to reach the end of the valley and find a road leading back to a highway. As the sun disappears and the valley is covered with a blanket of darkness, a line of Alaskan Four-Wheelers work their rigs out of the valley and away from the Knik Glacier.

Ed Note: We asked Sgt Thompson about the Club's safety program and he told us that because of the terrain and the weather, safety and survival planning are–and in fact must *be–an integral part of every activity. Spare parts, tool kits, first aid supplies and Arctic gear are carried. Food, too. The Club's charter also spells out how emergencies are handled. For instance, on the trip home from Knik Glacier, one of the Jeeps ran out of gas and had to be refueled from the spare supply taken on at Palmer. Three vehicles then took a position behind that Jeep just to be sure he didn't get stranded.*

no comment

How to get between a rock and a hard spot . . .

ATTACK of the INCRED

They're somewhere nearby, waiting in the shadows to get you, on a main thoroughfare or a side street. When you least expect it they'll open their jaws and eat your tires, your oilpan, maybe the whole car. You've seen lots of little potholes, and probably run over a good many. And you *know* that out there somewhere the fabled Giant Six-Foot Chuckhole is waiting to swallow your car whole, with you in it, and you'll disappear forever beneath the asphalt. ("I swear, officer! I saw this little beat-up VW drop into that thing, and it never came out!!")

Potholes are one of the byproducts of a long, hard winter. These little lovelies are not only annoying; they're dangerous. They can damage the tires, or the underside of the car, and they can misalign wheels. The Tire Industry Safety Council and the National Weather Service are warning of the probability of more potholes after the unusually severe winter we've just survived.

We mentioned potholes in the spring driving article elsewhere in the magazine, but we want to give them special attention, to combat the special attention they can give your car.

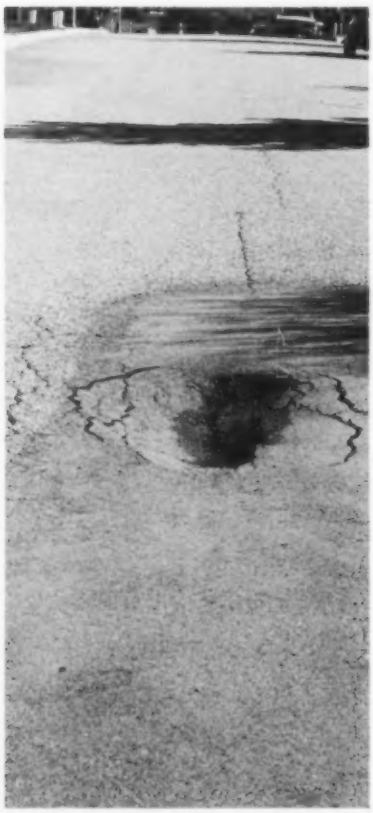
First, how do they get there in the first place? The National Weather Service reports that potholes are caused by constant freezing and thawing during the winter months. Moisture from rain, snow and ice is absorbed into the ground and seeps under the pavement. When the water freezes it pushes the pavement up, and when it thaws and seeps down into the ground, it leaves a hole under the roadway and cracked pavement. After this happens a few times, the spot is ripe for the formation of a pothole. All it takes is a car tire to crush the pavement into the hole.

You have to be on your guard. There's usually more than one of them. Either they travel in groups or they breed like rabbits, we're not sure. Anyway, just as you swerve to miss one, you run right over another one.

You want to minimize, or avoid, the damage that can result from a run-in with a chuckhole. If you read the aforementioned Spring and Summer Driving article, you know what we're going to say. (If you didn't, shame!)

That's right, it's the old cautious driving number. Drive slower, and watch for these little devils. The Tire Industry Safety Council advises you to do three things:

- Make sure your tires are properly inflated. Improperly inflated tires can cause a tire failure (like a blowout) if you hit a pothole hard enough.
- Slow down. It stands to reason if you move slower, you won't hit the hole so hard.
- Avoid the potholes if you can. At the same time, watch out for other cars if you leave your lane or swerve to miss a hole. Better you should hit the hole than another car.



A brand-new pothole, created after a car has mashed the pavement into the depression underneath. It'll develop the characteristic sharp edges as more cars break down the area.

Here's a sneaky one hiding beside a railroad it until you hit it.

This little one has developed a taste for Datsu tires.

The Council also advised motorists to have their cars inspected if they encounter severe, deep potholes, or if they drive over road debris. Have the tires, wheels and suspension looked at.

That may not do much to help you when you have that final meeting with the Monster Pothole, but at least it'll be eating a car that's in good shape.

BLE MONSTER POTHOLE

ck. Unless you're careful, you won't see

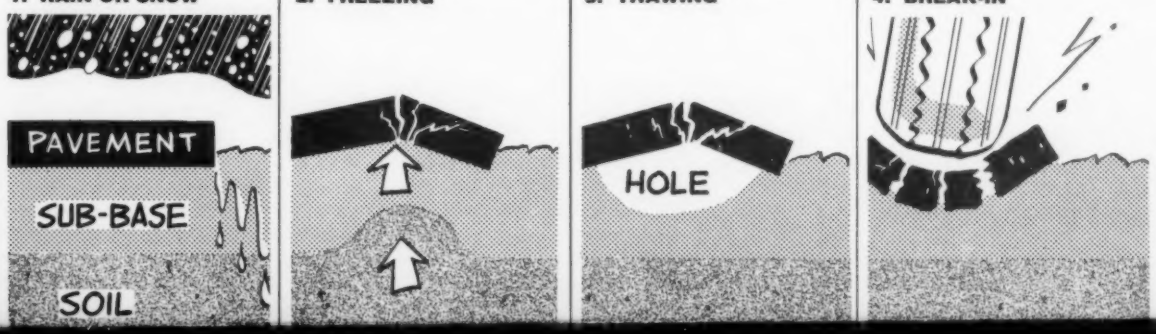
It'll grow as it feeds on more and more

(below)
This one looks a little like the Black Sea. It's not that large yet, but give it time . . .

(below)
How a pothole is born. (1) Rain, sleet or snow works its way into the soil under the pavement. (2) When the temperature drops, the water freezes and expands. This pushes up the soil and pavement. (3) As thawing occurs, the water runs away and the soil recedes, creating a hole under the pavement. (4) A passing car or truck breaks the pavement, causing the familiar pothole. Tires can be seriously damaged by striking a pothole.

Source: Tire Industry Safety Council, Washington, DC, 20045.

An ordinary, garden-variety chuckhole. Cute, ain't it?



Marketing of 23 Channel CB Radios

Revised CB equipment marketing standards became effective on 1 Jan 78. In Jul '76, new technical standards were developed to help reduce the interference problems for CBers, television viewers and other radio communications users. Due to the seriousness of current and potential interference problems, the Commission ruled that equipment that failed to meet the new technical requirements could not be marketed after 1 Jan 78.

CBers may continue to operate their 23-channel equipment. However, no one may sell, ship for sale, or lease equipment failing to meet the new CB standards.

The Commission's Field Operations Bureau, Office of Chief Engineer, Personal Radio Division and Office of General Counsel have received numerous inquiries about the impact of these new standards on the CB consumer. In an effort to provide guidance to the CB community and to the public in general, answers to some of the typical questions are repeated below:

1. May I still use my 23-channel set after 1 Jan 78?

Yes.

2. May I now sell my 23-channel set to:

- a dealer?
- a friend?
- any other individual?

No. CB sets failing to meet the new standards, which includes all of the currently available 23-channel models, cannot be sold at any level, including wholesale, retail, or individual selling even on the used market.

3. What equipment is not allowed to be sold under the new standards?

Many existing models of new, used and rebuilt CB equipment fail to meet the new technical standards. These are the units to which this Notice refers when using the term "23-channel CBs." The following list cites most of the unmarketable types of equipment:

(a) No 23-channel CB radios have been approved under the new standards. Therefore, all currently available 23-channel CBs are included under the marketing ban.

(b) All of the CB radios with less than 23 channels which were approved by the Commission prior to 10 Sep 76 are banned from marketing. If you are in doubt about a particular model, submit the brand name and model number to either your local FCC Field Office or to the FCC Laurel Laboratory located at P.O. Box 40, Laurel, MD 20810, (301) 725-1585.

(c) Any receiver or transceiver which has a separate band to receive CB signals and which is not been approved by the Commission is also banned from sale or resale. This includes some equipment available in the Amateur Radio Service. Questions involving a particular model should be directed to the FCC Laurel Laboratory.

(d) Most CB converters (devices used to change an AM radio into a CB receiver) fail to meet the new technical standards. If you are in doubt about a particular model, contact the FCC Laurel Laboratory for clarification.

4. What about hand-held CB radios ("walkie-talkies")?

Hand-held CBs with a built-in microphone, a permanently attached antenna, an internal battery supply, and both receive and transmit capability may be marketed until 1 Aug 78.

5. May a 23-channel CB radio be "traded in" on the purchase of additional radio equipment?

Yes. While this transaction is technically a sale of the 23-channel CB by the buyer to the electronics dealer, this concept is consistent with the Commission's purpose to limit the availability of these interference prone devices. Because the dealer is prohibited from reselling the 23-channel radio which was traded-in, this equipment is then effectively removed from the marketplace. However, it should be noted that it is up to the dealer's discretion to decide whether or not he wants to accept such a trade-in.

6. May a 23-channel radio be given away?

Yes, within certain limits. The Commission will not prohibit the giving away of a 23-channel radio if the transaction is a genuine gift. However, these 23-channel CBs must have been purchased prior to 1 Jan 78 since the sale of this equipment after that date is prohibited even if the purchaser intends to give away the radio. As examples, the Commission would not prohibit the following types of give aways:

(a) An individual making a gift of a 23-channel CB to a family member, friend, or charity.

(b) The giving away of 23-channel radios as "door prizes."

(c) A store giving away 23-channel radios to the first ten people who entered the store on a given day.

The rules would prohibit the following examples which are not considered to be genuine gifts:

(a) Any transaction which requires the recipient of the gift radio to give something of value to the giver. That is, if the gift really amounted to a trade in which the recipient made a gift of something else to the original giver.

(b) A store offering to give away a 23-channel radio if the individual purchases something else such as a microphone or antenna or if the individual must pay to enter the store.

7. May a 23-channel CB radio be sold for salvage, that is, for use as parts?

Yes; however, the radio frequency generating components for both the receiver and the transmitter must be removed prior to the sale. While these removed parts can be sold as part of the package, the sale must consist essentially of a "bag of parts" where the radio has been *permanently* disabled.

8. May a 23-channel CB radio be remanufactured to conform to the new technical specifications or converted to 40 channel operation?

Yes. Any CB radio which is covered under the 1 Jan 78 marketing ban may be remanufactured to 40 channel operation or continued to be sold *if* the radio has been modified to meet the new technical standards, re-identified as a different model, and has received a new grant of type acceptance for the transmitter and a new grant of certification for the receiver from the FCC Laurel Laboratory. However, to date, no existing 23-channel radio has proved capable of meeting these new specifications even if modified.

9. May I sell my car, van, mobile home, etc., with a 23-channel CB radio installed?

This is permissible only if the radio has been permanently installed as an in-dash unit and was installed prior to 1 Jan 78. Such an installation would be of the type that the radio would be included within the coverage of a typical comprehensive automobile insurance policy. The sale of add-on CBs, such as under-dash models, would not be allowed under this exclusion.

10. If a customer purchased a 23-channel radio before 1 Jan 78 and the radio is defective, can the dealer exchange the radio or repair it?

Both of these actions would be allowable. Repairs to the radios are not prohibited. In the case of an exchange program to supply the customer with a working radio in place of a defective unit, this would not be considered marketing by the Commission as the customer would still be in possession of the same type of unit that was originally purchased before the cut-off date. However, the dealer would not be permitted to sell the unit he took in exchange.

Any further questions on this material, with the exception of the inclusion of specific models of radios which should be directed to the FCC Laurel Laboratory as indicated above, should be directed to either Mr. John Reed or Mr. Frank Rose at (202) 632-7093. The mailing address is Research & Standards Division, Room 7202, Federal Communications Commission, Washington, DC 20554.

(Courtesy of FCC Public Notice)

THE BACKYARD MECHANIC

Volume II Is Now Available

PLEASE READ THE FOLLOWING INFORMATION CAREFULLY:

1. This volume is free of charge only to active duty military. You may have the book mailed to your home address, but you *must include your military rank with your name.* Orders without rank will not be filled.

2. All material in Volume II originally appeared in DRIVER Magazine and is written especially for the 18-to-25-year age group.

3. The amount of clerical time available for filling orders for "The Backyard Mechanic" is very limited. For fastest service, send along a self-addressed 9½" by 12" envelope with 50¢ postage affixed.

4. If you are willing to wait for your copy and cannot send a stamped, self-addressed envelope, send your request on a postcard. You can make a postcard from a file card. Put your rank, name and address on the reverse side so it will not be covered by the postmark. Some people missed getting Volume I because we could not make out their addresses. Post card orders will be filled in order of receipt, about 150 mailings each week.

5. **AIR FORCE AND ARMY PERSONNEL,** send your requests to:

The Backyard Mechanic
Norton AFB CA 92409

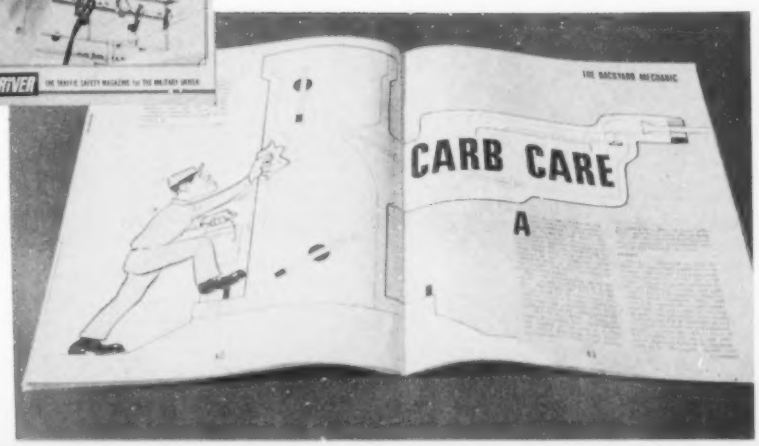
6. **NAVY AND MARINE PERSONNEL,** send your requests to:

The Backyard Mechanic
NAVSAFECEN
NAS, Norfolk, VA 23511

Navy and Marine personnel are encouraged to furnish a self-addressed indicia envelope (9½" by 12"). NAVSAFECEN is now mailing one copy of Volume II to every Navy and Marine Corps address that receives DRIVER Magazine, so their supply of volumes for indidual mailing will be limited. Order early.

7. If you are not active duty military, you may purchase Volume II from Consumer Information Center, Pueblo, CO 81009, for $1.60. Volume I is available from the same place for $1.25.

8. Only one copy per request will be mailed. Copies of Volume II will not be mailed in quantities of 2, 5, 10, 20, etc. One to an order please.



Timely Topics

Metric Markings

Tire Industry Safety Council, Washington, DC 20045.

MANUFACTURER'S NAME
• SIDEWALL 2 PLIES
XXXX CORD •
• RADIAL • TUBELESS • MAX LOAD • STANDARD LOAD
DOT XXXX XXXX • TREAD 4 PLIES
790 KG (1742 LBS) • 240 kPA (35 PSI)
2 XXXX CORD • 2 XXXX CORD
MAX PRESS.
NAME OF TIRE
P 215/75R15

A new family of passenger car tires with metric markings is being produced by tire manufacturers as part of the automotive industry's gradual conversion to the metric system. In the example here, "P" stands for passenger; "215" is the width of the tire cross section in millimeters; "75" is the ratio of height to width; "R" means radial and "15" is the diameter of the rim in inches.

Load and inflation figures are given in both metric and conventional terms on the new "P-series" tires. The other sidewall markings remain the same. These include the Department of Transportation tire identification number and the type of cord in various plies.

Tire gauges will also be calibrated metrically. You will have to learn how to convert pounds per square inch (PSI) into kilo Pascals (kPa):

To convert pounds to kilo Pascals, multiply pounds by 6.895. (If you don't have a calculator handy, multiply by 7 and round off.)

17 lbs. x 6.895 = 117.215 kPa

There is one catch: kilo pascals can only be expressed in steps of 20, so you must round 117.215 off to 120 kPa.

Load factors will be expressed in kilograms instead of pounds.

To convert pounds to kilograms, divide pounds by 2.2

695 lbs. ÷ 2.2 = 315.90 kg, rounded off to nearest whole number = 316 kg.

Multiply load in kilograms by 2.2 to arrive at load in pounds.

NUMERIC		ALPHA NUMERIC			METRIC		
1965 & LATER	50 SERIES	60 SERIES	70 SERIES	78 SERIES	60 SERIES MILLIMETER	70 SERIES MILLIMETER	80 SERIES MILLIMETER
560-14:							155/80-14
			A70-15	A78-15			
600-13		A60-13	A70-13	A78-13	195/60-13	185/70-13	165/80-13
600-15		B60-15	B70-15	B78-15		185/70-15	165/80-15
645-14				B78-14		185/70-14	165/80-14
650-13	B50-13	B60-13	B70-13	B78-13			173/80-13
685-15		C60-15	C70-15	C78-15			175/80-15
695-14	C50-14	C60-14	C70-14	C78-14	215/60-14		175/80-14
700-13	C50-13	C60-13	C70-13	C78-13	215/60-13		185/80-13
			D70-15	D78-15	215/60-15	195/70-15	
		D60-13	D70-13	D78-13			
		D60-14	D70-14	D78-14	225/60-14	200/70-14	
		E60-13		E78-13			195/80-13
735-14		E60-14	E70-14	E78-14	235/60-14	205/70-14	185/80-14
735-15	E50-15	E60-15	E70-15	E78-15	225/60-15	205/70-15	185/80-15
775-14	F50-14	F60-14	F70-14	F78-14	245/60-14	215/70-14	195/80-14
775-15		F60-15	F70-15	F78-15	235-60-15	215/70-15	195/80-15
825-14	G50-14	G60-14	G70-14	G78-14	245/60-14	225/70-14	205/80-14
825-15	G50-15	G60-15	G70-15	G78-15	235/60-15	225/70-15	205/80-15
855-14	H50-14	H60-14	H70-14	H78-14	255/60-14	230/70-14	215/80-14
855-15	H50-15	H60-15	H70-15	H78-15	255/60-15	235/70-15	215/80-15
885-14		J60-14	J70-14	J78-14	275/60-14	245/70-14	225/80-14
885-15		J60-15	J70-15	J78-15	265/60-15	245/70-15	225/80-15
900-15			K70-15				
		L60-14	L70-14				
915-15	L50-15	L60-15	L70-15	L78-15	275/60-15		235/80-15
	N50-14						
890-15	N50-15			N78-15			

Photo Credit

The excellent photographs illustrating "Motocross Safety Gear" in our January issue were taken by SSgt Robert Marshall of the Photo Journalism Division, Air Force Aerospace Audiovisual Service. We regret we did not credit him properly.

Photographs are an important part of DRIVER's presentation and we rarely accept an unsolicited article that is not accompanied by photos. Unless the prints are clearly marked with the photographer's name, however, it is easy for us to assume that they are the work of the author. If you are a photographer whose work is submitted for publication, you will insure your credit line by putting your name on the back of each print or at the end of each attached caption.

Maintenance-Free Battery May Not Be Trouble-Free

The lifetime guaranteed, maintenance-free battery still needs careful handling to prevent acid leakage, explosions and other hazards.

"Many maintenance-free batteries do not carry warnings of any hazards," David Glass, loss control director at Fireman's Fund Insurance Companies, said, "but the hazards are there and precautions should be taken."

Here is his advice for using your maintenance-free battery safely:

1. Don't set your battery on its side or upside down. Because of their smooth tops, these batteries may appear to be sealed, but many of them aren't.

2. To check the condition of the battery, always use the

"load testing" system — checking the voltage the battery delivers while subjected to a normal starting load.

3. Never "quick charge" a maintenance-free battery. An explosion can result from overheating, over-charging or rapid charging.

4. When jump-starting either to or from a maintenance-free battery, remove the jumper cables as soon as the car is started.

5. Always warn the service station attendant, repair garage mechanic or tow truck driver that you have a maintenance-free battery.

(Courtesy of Automotive News, 20 Feb 78)

More Foreign Cars Recalled For Safety Defects

More than 180,000 Jaguars, Triumphs and Austin Marinas and 74,000 Toyota Celicas are being recalled because of safety defects, as announced by the National Highway Traffic Safety Administration.

Six separate recalls are involved with the Jaguars, Triumphs and Austins—made by British Leyland Motors—with some models involved in two recalls. The defects include windshield washers and wipers, headlamp switches, throttle linkages and fuel leaks.

The windshield wiper malfunctions are on 1969 through 1977 Triumph Spitfire, TR6, TR7 and Stag autos, and the lighting system failures are in 1970 through 1977 Triumph Spitfire, TR 6 and TR7 cars.

About 12,500 Jaguars are being recalled because of failure of windshield washer pumps. They include 1974 through 1977 models XJ6, 6L and 6C and 1973 through 1977 models XJ12, 12L and 12C.

Approximately 41,000 of the 1975 through 1978 Triumph TR7s will have their windshield wiper linkages checked for looseness and possible water entry into the wiper motor. The headlight switch recall involves about 108,000 Triumph vehicles, including the 1969 through 1973 GT6, 1969 through 1976 TR6, and the 1969 through 1974 Spitfire.

In addition to the light switch, 1973 through 1976 Triumph TR6 models will have their accelerator linkages inspected and adjusted and an abutment bracket washer will be installed to avoid throttle sticking. The 1971 through 1974 Triumph Spitfires will have their fuel hoses and fuel pump connections inspected for possible fuel leaks. Each of these recalls involves about 37,000 vehicles.

More than 20,000 of the 1973 and 1974 Austin Marinas are being recalled for inspection and correction of possible fuel leaks at the fuel pump or defective fuel tank vent hoses that allow fumes to leak into the trunk.

The 1972 through 1974 Toyota Celicas are being recalled for replacement of the passenger compartment heater hose. The safety agency said it has received reports of three heater hose failures in which hot coolant was sprayed on the legs of the drivers.

Join The AMA?

By the time you read this issue, many of you will be limbering up your motorcycling muscles and preparing to get your bike out of its long winter nap. Others among you may be afflicted with spring motorcycle fever and run down to your local dealer (with a quick stop at the Credit Union) for a shot of "motorcycle feelgood."

Long-time readers of DRIVER know that *we like bikes* and we like bikers . . . and that we think that with proper rider education, proper protective clothing, and good defensive riding skills, cycle riding is just about as safe as many other things and probably one heck of a lot more fun than most.

We also feel that this year would be a good time to join the American Motorcyclist Association. The AMA is a member service organization and exists to serve you, the motorcyclist. AMA members themselves are among the finest representatives of motorcycling, and the AMA staff of legislative analysts, pro and amateur competition directors, government relations specialists, member activities people, and road-riding development enthusiasts are among the most devoted in the fine sport of motorcycling.

If you opt for a full membership in AMA, you also get a subscription to *American Motorcyclist Magazine*, a cycling journal that not only covers all aspects of AMA activities (and that's a whole bunch) but is also heavily committed to motorcycling safety as well as cycling skills development.

The AMA is the voice (and sometimes even the conscience) of a pretty big group of American cyclists. We realize that many of you already belong to a local club, but the AMA can provide the national representation that cyclists still occasionally need.

If you want to know more about the AMA and what it can do for you, write to them at P.O. Box 141, Westerville, Ohio 43081 . . . and tell 'em you read about it in DRIVER!

"Explosafe" Gasoline Containers Now On Market

"The search for an explosion-proof metal gasoline container is now over" according to the people at KIDDE BELLEVILLE Division of Walter Kidde & Co.

Kidde Belleville claims that their new "Explosafe" fuel containers virtually eliminate the danger of fuel container explosions when used as directed.

The "Explosafe" principle, "Explofoil," is a special heat-conducting, corrosion-resistant, non-absorbent mesh of aluminum alloy that fills the container yet adds only minimal weight and displaces a negligible amount of liquid.

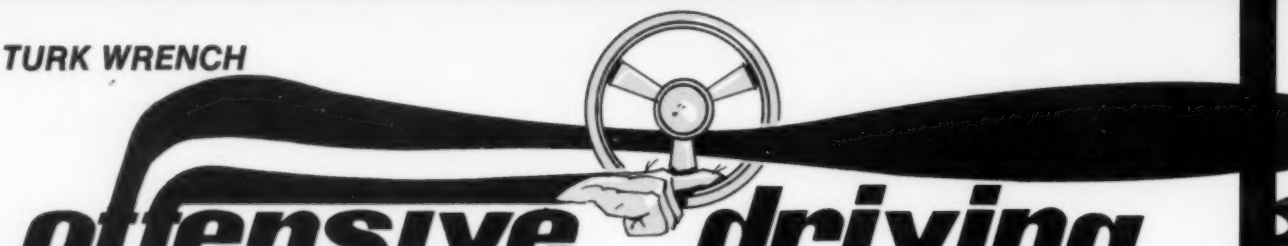
The honeycomb-like cellular structure distributes heat uniformly and rapidly throughout the container's interior and moderates hot spots that could potentially set off an explosion.

Other safety features of the can include: a leak-proof spout and filler neck opening containing filter and flame-arrestor screens, a plated metal screw cap with gasket and safety chain, a permanently attached vent plug to control fuel flow and thermal expansion, and a container body of heavy-gauge steel.

Kidde says the containers were subjected to a series of ignition and heat tests while holding gasoline and other volatile liquids, and that the containers would not explode even when subjected to explosive charges, fire, welding, or incendiary projectiles.

The containers come in 5-, 2½-, and one-gallon sizes . . . just right for you snowmobilers, boaters, and racers, or even for storing gas around the ol' homestead.

by TURK WRENCH



offensive driving

Note: This article is not meant to be a serious suggestion to drive to cause accidents: It's April Fool time! We have long wondered what must be going on in the minds—if they have any—of the people who drive as though they owned the road. If they think at all, this must be the manner in which they do it.

I think there's been enough emphasis on defensive driving. That kind of thing – driving slow, keeping back to avoid accidents – is just for people who really can't cut it. I was always taught the best defense is a good offense. So I'm here to talk about OFFENSIVE driving.

That's right. I don't watch out for the other guy. Let that clown watch out for *me*. If I can strike enough fear into him, he'll stay out of my way just to save his own hide. I've been an offensive driver for years. I drive like a maniac and I enjoy it. I get into accidents fairly often, but everything has its price.

My purpose in writing this article is to give you some general pointers on how you too can become an offensive driver. The items listed here are by no means the entire repertory of offensive driving techniques. After you read this you may want to think of some other methods to annoy and frighten the other drivers on the road. If you think of any especially good ones, be sure to let me know. I'm always eager to try something new.

First, what do I mean by offensive driving (or O.D., as I sometimes call it)? Well, certainly not the ordinary swearing-and-obscene-gestures kind. I'm talking about *gutsy* driving, driving on the fine edge of disaster. The mark of a real man is the amount of fender damage, the absence of bumpers and chrome strips, starred windshields, stuff like that. This shows the real offensive driver.

The first O.D. prerequisite is to drive fast. Not 60 or 70. More like 80 or 85, with spurts of 90 or better. Nothing like leaving those clowns in a cloud of smoking rubber, preferably sitting by the side of the road with a smashed fender.

Another thing is to tailgate. Roar up on some dude's tail and ride there until he moves over, or speeds up. If he speeds up, keep with him. Ride his bumper at a distance of three feet and stay there. Make *him* change lanes. Honk your horn and flash your lights until he does. If he's too stubborn, or if he doesn't recognize your God-given right to ALL the highway, go ahead and change lanes. But be sure to rev up your engine until it roars, and pull back as close in front of him as you can. He had no business being there in the first place.

Then go on and tailgate the next guy . . .

In moderately heavy traffic, change lanes as often as possible, without signalling. Signalling your intentions is out. Any advance warning you give those idiots reduces the fun and the sheer gut-quivering exhilaration of offensive driving.

Move into any space that's big enough for your car, the smaller the better. And always wait until the last possible moment before changing lanes – it adds to the fun and excitement, and the other guy's fear.

Pay attention to any and all distractions. That includes the dame with you, the radio, planes in the sky – anything that will divert your attention from the road. After all, those fools should be watching out for you, right?

"But Turk," you say. "How about collisions, real smash-ups where people are put into the hospital? Aren't these the mark of a real offensive driver?" My answer is "yes." But there is a subtle problem inherent in smash-ups – you *yourself* could end up in the hospital, or the morgue.

Of course, that would prove your manhood, but it would also put you temporarily – or permanently – out of the O.D. game. That's not the idea. The idea is to keep the other motorists in blind fear at all times, and you have to be on the road to do that.

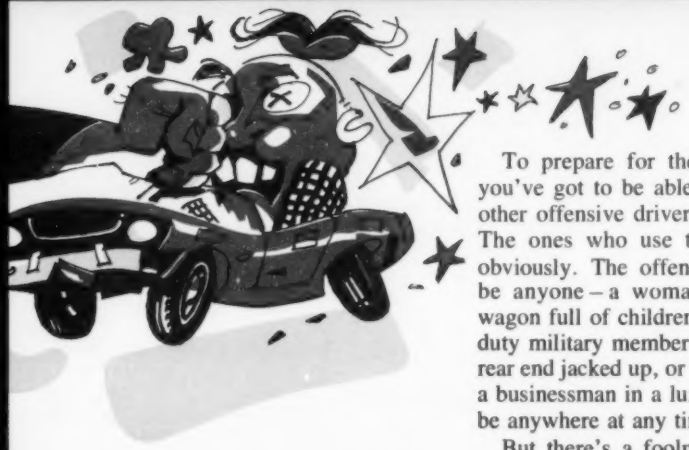
So actual collisions are out, unless you can get away with them. But anything short of that is permissible. That's what I mean by driving on the fine edge of disaster. And remember, collisions are always the fault of the other guy. He didn't watch out for you.

When driving at night, leave your bright headlamps on at all times. You have to see where you're going, and if the other guy can't see, that's tough. If he flashes from bright to dim in an effort to make you dim your lights, ignore him. That'll serve him right for flashing bright lights in your face.

In any situation, freeway, city or country driving, don't watch the lane dividers. It's *your* highway, remember. You should take advantage of all of it. Creep over into the other lanes, or just edge up on the line, scaring the other driver out of his wits. You can either pretend you don't see him, or show that you *do* see him and don't care.

In line with the lane changes on the highway, change lanes without warning in the city, too. An especially good method is to change lanes across two or more lanes of traffic, right in front of someone.

"What if I'm not feeling hostile?" you ask. Well, if you're kinda laid-back on a given day, not aggressively hostile, try being *passively* offensive. Bottle up traffic. Pick out a slow-moving car – one of those creeps you usually harass – and enlist him as an



unwitting ally. Parallel along with him for a while, tying up traffic behind the two of you.

Or, if there's only one lane of traffic going in your direction, you can do this all by yourself. It's fun when there's a no-passing zone. If one of the creeps behind you tries to pass, speed up so he can't get it done.

Just a few other clues that may seem obvious: Rapid starts are a must. They show you're eager. Also, run stoplights and stop signs. That'll keep 'em on their toes! And a special tip: Say you're on a highway and you pass an on-ramp where someone is trying to gauge where he can enter the flow of traffic. Now, you wouldn't want to move over and let him in, would you? Of course not! Stay there in the right lane and make him sweat it out. Chances are, the drivers who are following would secretly like to be offensive as well and they won't let him in either!

Here's something that must have occurred to some of you by now: The meeting of two offensive drivers. Fortunately there aren't that many of us, so this doesn't happen often. I say "fortunately" because the other offensive driver could be the most dangerous person on the road. Remember, he may be even more hostile than you are. And if he is, you'd be wise to steer clear of him – literally. He could end your career as King of the Road.

And what if you're challenged in some way? Say he speeds up past you and then drops back to parallel . . . Then, your only option is the drag race. You can't let him win without a fight. That's the worst thing about offensive driving. Someone is always out to prove he's faster on the draw . . . uh, accelerator.

To prepare for these eventualities, you've got to be able to recognize the other offensive drivers. Who are they? The ones who use these techniques, obviously. The offensive driver could be anyone – a woman with a station wagon full of children, or a young off-duty military member in a car with the rear end jacked up, or a girl in a VW, or a businessman in a luxury car. He may be anywhere at any time.

But there's a foolproof way to tell. The eyes. The offensive driver is a Jekyll-Hyde personality. He is totally different behind the wheel from what he is elsewhere. Out of his car, he's Dr. Henry Jekyll – calm, cheerful, a pleasant sort. His eyes are friendly and he smiles a lot. But once in the car, he becomes Edward Hyde! The eyes narrow to slits, or they stare out at the road, glazed. His hands grip the wheel tightly. There may be a scowl, and he may mutter under his breath.

I myself like the fierce narrow-eyed stare with clenched teeth.

Now that you know what to do and how to look, you're ready. But first, a final word on other drivers. I look on other drivers as a regrettable necessity. They get in the way and they drive slow – but without them there would be no one to offend, and where would the offensive driver be?

But consideration for the other guy's rights? Don't make me laugh! Other Guy, watch out!

The eyes are the giveaway for the offensive driver. In non-driving situations, he looks normal, mature, intelligent—like the type of guy you'd let your sister go out with.

But behind the wheel he changes remarkably. Anger and blind malevolence set in. These are the eyes of a born killer.

Or he may look coldly menacing. This is the expression I like to use.

The Great Debate

Synthetic oils and lubricants, aftermarket oil additives, and the "IF" factor

The following discussion of synthetic oils and lubricants and aftermarket oil additives is fairly straightforward . . . it's the "IF" factor that may be a bit complicated to explain. OK, you ask, "What in heck's an IF factor?" Well, the IF factor is the thing that determines whether or not synthetic lubes and oil additives are a good idea for YOU in YOUR particular situation.

Let's do the groundwork on synthetics and additives, and then swing into the pros and cons of their value to you as a car owner or driver.

Synthetic Oils and Lubricants: A quick search of the history books reveals that synthetics aren't as new as many of us suppose. As far back as 1930, research programs were under way to develop alternatives to petroleum-based lubricants.

But it was during World War II that the need for a lubricant different from petroleum was made apparent. During the battle for Stalingrad in 1942-43, the German Army discovered that their war machines couldn't function in the cold Russian winter. Petroleum-based lubricants jelled in the cold, and the huge guns would not recoil properly. Vehicle engines could not be started, and tank tracks would not turn because their lube had "frozen."

The German scientists started work on synthetic oils and lubricants that could be blended with their petroleum counterparts to depress the pour point (covered in the March issue of DRIVER) and provide lubrication at extremely low temperatures.

In 1947, the English developed the first commercial application of ester, or synthetic, oils by using them in turbo-prop aircraft engines where high temperatures and heavy parts loading caused regular petroleum-based lubes to break down.

But it was the development of the jet engine that really brought about the introduction of synthetic lubricants. By this time the field of synthetics had broadened from the use of esters to include polyol, polyalphaolefins, and alkylated benzenes. The main advantage of these synthetic lubricant bases was the higher engine operating temperatures that they allowed . . . a complete about-face from their beginnings as cold-conquerors.

The synthetics also gave added benefits in the form of greater engine cooling, less designed-in engine weight and bulk, and greatly extended oil drain intervals. Remember, unlike internal combustion engines, combustion products in a jet engine do not mix with the oil.

The attributes of synthetic lubes and oils attracted some of the best petroleum and chemical engineers in the country, and today, automotive engines as well as jet engines benefit from their research.

Four Basic Types: There are four basic chemical classes from which the synthetics derive. Two belong to a class called esters, which are made by reacting an alcohol and an acid, and two others are synthesized hydrocarbons in which heavy molecules similar to those in natural petroleum are constructed atom by atom from various hydrogen- and carbon-containing light molecules. These four types are:

- The dibasic acid esters or diesters. This is the base for Amsoil and Eon E-11.
- The polyol esters. Base stock for All-Proof and Eon D-20.
- Polyalphaolefins. A synthesized hydrocarbon that is the base for Mobil 1 and Chevron Sub-Zero Fluid.
- The alkylated benzenes. Also a synthesized hydrocarbon, it is the base for Conoco's Polar Start DN-600.

All of these oils are API SE rated (see Mar '78 DRIVER) and are suitable for use in any car.

General Advantages: There are basic advantages that synthetics have over conventional oils. There are also dis-advantages, but we'll get to those in the "IF Factor" section.

Synthetics usually have better thermal and oxidative stability than petroleum oils. For instance, the lubrication

range of a good synthetic is from −60 degrees F to +400 F. Petroleum oils range from 0 F to +300 F. The flash point for synthetics is about 470 F while petroleum oils flash at 350 F. In an evaporation test, a synthetic will lose only one percent of its volume over a period of time, where a petroleum oil will dissipate over 28 percent. During the SE test for viscosity increase over a 64-hour period, petroleum oil will increase viscosity by about 100 percent, while a synthetic will increase about 10 percent.

A telling statistic is the amount of amps an engine draws when it is cranking. To crank a normal engine at 250 RPM with the temperature at −40 F requires about 22 amps with synthetic oil, and about 270 amps with petroleum-based oil. Synthetics also have increased resistance to oxidation at high engine temperatures so they are less prone to varnish formation. Also, since synthetic oil is slipperier, friction is less and therefore engine temperature is less . . . all of which lessens chances of varnish formation.

Synthetics have better high temperature fluidity. Synthetic 10W-40 oil is serviceable at 480 F and has a pour point of about −60 F. We're all familiar with the advantages of synthetics for low-temperature use, but going in the other direction, underhood temperatures have been creeping up for years due to the added number of accessories and the particular requirements of many emission control systems. More cars are used today to haul trailers and sustained high-speed driving is commonplace.

Delving a little deeper into synthetics' ability to withstand high temperatures, we find that most petroleum-base oils will begin to oxidize rapidly at about 250 F. With the addition of the correct additives, that limit can be upped to about 300 F. Since synthetics are made from more stable molecules, diester stocks can be made to easily withstand temperatures 200 degrees above that at which petroleum-based stocks will fail, and synthesized hydrocarbon stocks can be made to do about the same.

Gulf claims an ignition temperature of 710 F for their Synfluid, and states that the thermal-decomposition temperature is about 625 F. Why is high temperature capability important in today's oils? If you read the Oil article in the March issue of DRIVER, you'll get a good idea of what oil has to do in your engine. In the early '70s, large displacement engines operating in the southwest while pulling heavy loads (like a boat) began to go out to lunch with regularity. The driver would take a break for lunch and the oil would cool down and virtually solidify . . . the engine wouldn't even turn over. In a copyrighted article about synthetics, *Popular Science* columnist Smokey Yunick recalled that "with some of those big '69 engines, we'd pull off the oil pan and take a knife and cut out what was left of the oil and bounce it on the floor.

"The problems that plagued those engines have been largely solved, but temperatures are creeping up toward that trouble level again. A properly formulated synthetic can overcome such problems. A paper was recently published in which a comparison was made between high-quality SE mineral oils and ester lubricants. They were put through the severe Oldsmobile IIIC high-temperature test. To pass, the oil must thicken no more than 400 percent over 40 hours of continuous running. Several mineral oils thickened 75 and 150 percent, and from 600 to 1000 percent in 64 hours. Esters thickened between 6 and 9 percent."

The natural viscosity characteristics of synthetics make it possible to use few viscosity index (VI) improvers in most formulations. Since VI improvers are usually heat sensitive, leaving them out produces a more stable oil.

Synthetics have a very low coefficient of friction. If you over-simplify the theory of synthetics, you could imagine that millions of tiny ball bearings function to reduce friction and drag. This is why the synthetic manufacturers make their claims for higher gas mileage and increased cranking speeds . . . synthetics are slippery.

Since synthetics are so slippery, they allow metal engine parts to move against each other with little friction. This means that little or no metal is worn off parts. It also means that rings will seal better and proportionately less combustion byproducts will get down into the oil. All in all, this means that extended drain intervals may be possible with synthetics because the chances (and causes) of oil contamination are lessened.

Oil consumption (in a healthy engine) may be lessened with synthetics because of their better thermal stability. Since synthetics are less volatile, or prone to evaporation, than petroleum oils, they may decrease oil consumption up to 40 percent. Remember, though, that we are talking about a healthy engine. If your engine has worn rings or cylinder bores, or leaking oil seals, use of a synthetic may aggravate the problem.

Better gas mileage is usually a byproduct of synthetic oil use, but there's a great deal of disagreement about *why* mileage improves. One school of thought is that since many synthetics

continued

are rated 5W-20, the mere fact that the oil is light and free-flowing accounts for the majority of the gasoline savings. Another school thinks that a synthetic of the same viscosity as a conventional petroleum oil will help deliver better mileage because of the difference in what happens to an oil's viscosity under extreme pressure. Synthetics maintain viscosity better under pressure and therefore reduce friction which results in better mileage. Also, synthetics flow more freely at low or engine start-up temperatures where conventional oils extract a large mileage penalty until they reach their optimum operating temperature.

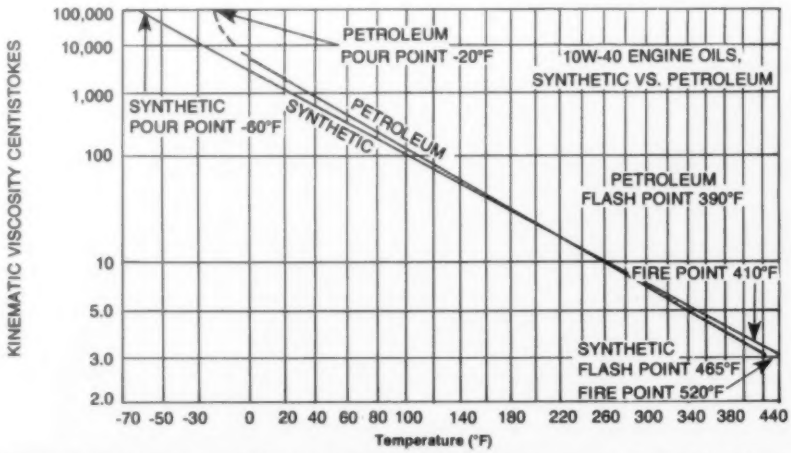
Another facet of the claims about better mileage may be the fact that most synthetics have a much higher film strength than conventional oils. Film strength refers to the amount of pressure it takes to squeeze the oil out from between two pieces of flat steel, and the higher the film strength of an oil, the more tenacious it will be about clinging to operating engine parts. If a film of oil stays on rubbing surfaces, it stands to reason that the surfaces will create less friction (and gasoline use) than surfaces that are not well-lubricated. Synthetics have a nominal film strength of about 3200 psi whereas conventional oils average around 400 psi. It is conceivable that since synthetics have a higher film strength, they will stay on the main friction-causing parts (like the main- and rod-bearings) more of the time than will petroleum-based oils.

Also remember that since synthetics allow easier cranking, they cause the battery to discharge less during starts and this means that the engine-driven alternator doesn't have to work as hard to recharge the battery. Any time you reduce the load of an engine, you're going to get better mileage.

Extended drain intervals seem to be the other big selling point of synthetic oils. *Popular Science* has verified cases of synthetic oil-equipped engines going as far as 100,000 miles without an oil change, but you'd better believe that if you try this trick, you had best be prepared for trouble.

Most reputable manufacturers of synthetics say that you can go as far as 25,000 miles or one year between changes, but they qualify that figure by saying "under normal conditions" or "when used in conjunction with our special oil filter." Yes, synthetics *can* go for longer intervals between changes than can conventional oils, but they do have their limits and these limits are more limits of economy rather than chemical composition.

Synthetics can go longer than conventional oils for several reasons. One is that they are inherently better at the detergent/dispersant function. They clean engine parts better and are able to hold the material in suspension longer. Another is that conventional oils break down with heat and time and form resins and insolubles . . . synthetics don't. A third reason is that a synthetic's ability to neutralize acids is much greater, with some synthetics



Mineral oil thickens rapidly below 0°F, thins at high temperatures. Synthetic oil, here a diester, has inherently better high- and low-temperature qualities.

OLDSMOBILE SEQUENCE IIIC	API SE Requirements	Mobil 1 Std.	Mobil 1 Ext.
Vis. Increase @ 100°F (37.8°C)			
@ 40 Hrs. %	400 Max.	19	33
@ 64 Hrs. %	—	23	39
@ 128 Hrs. %	—	—	112
Average Eng. Ratings, Hrs.	64	64	128
Piston Skirt Varnish	9.3 Min.	9.3	9.3
Oil Ring Land Varnish	6.0 Min.	8.4	7.2
Sludge	9.0 Min.	9.5	9.5
Ring and Lifter Sticking	None	None	None
Cam or Lifter Scuffing	None	None	None
Cam Plus Lifter Wear (In.)			
Average	0.0010	0.0006	0.0010
Maximum	0.0020	0.0010	0.0020
FORD SEQUENCE VC			
Avg. Engine Ratings, Hrs.	192	192	384
Avg. Eng. Sludge (10 = Clean)	8.5 Min.	9.6	8.9
Avg. Piston Skirt Varnish (10 = Clean)	7.9 Min.	8.4	8.2
Avg. Eng. Varnish (10 = Clean)	8.0 Min.	8.8	8.0
Oil Screen Clogging, %	5 Max.	0	0
Oil Ring Clogging, %	5 Max.	0	0
Ring Sticking	None	None	None

Data under "Std." column show Mobil 1's results in regular sequence test; numbers under "Ext." after double-length tests. Perfect varnish/sludge score 10.

even being able to disperse acid already formed.

So, overall, we have in synthetics a series of products that can: 1. Increase gas mileage; 2. Prolong engine life by decreasing engine temperatures; by keeping sludge, varnish, and acid formation at a minimum; by keeping metal-to-metal contact at a minimum thereby reducing wear; and by providing quicker warm-ups; and 3. Go longer periods between changes. Now we come to the "IF Factor."

"IF Factor": What is the IF factor concerning synthetics? Simply put, it's what someone says when synthetics are mentioned. "IF synthetics are so

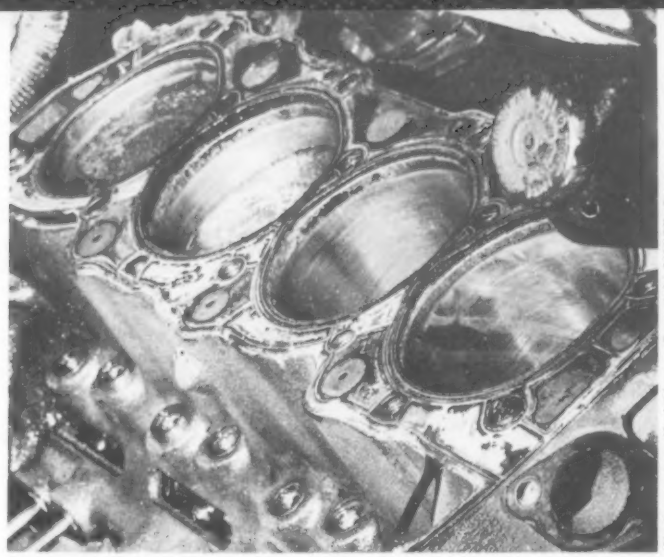
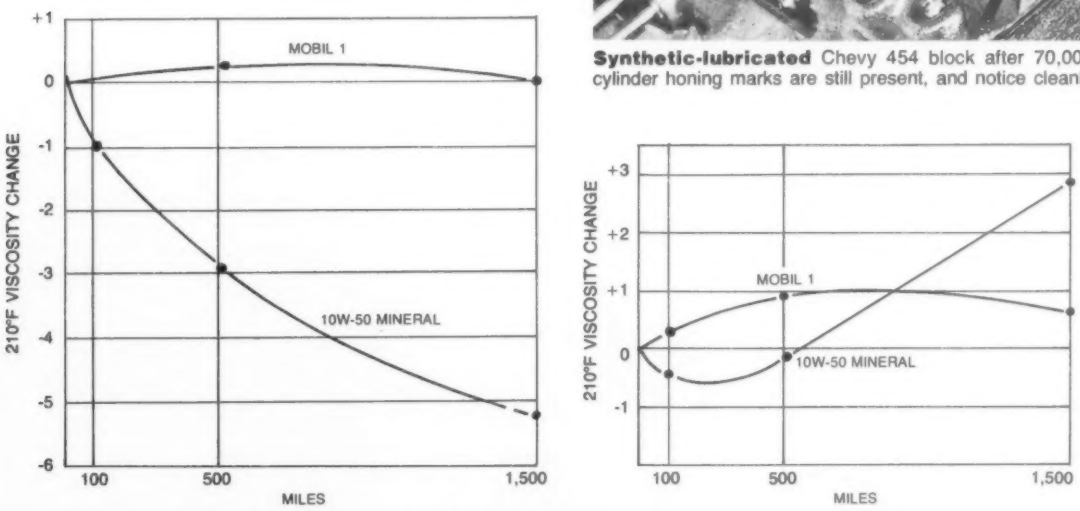


Photo courtesy Karl Olsson, Copyright AMSOIL Corp.

Synthetic-lubricated Chevy 454 block after 70,000+ miles. Factory cylinder honing marks are still present, and notice cleanliness of oil gallery.



VI-improved oils shear, lose their viscosity in severe service. Severe shear test in manual transmission shows greater shear resistance of synthetic (left). High-temperature oxidation in crankcase causes oil thickening of 10W-40 mineral oil, little change in synthetic (right).

darn good, then why doesn't Detroit use them in their new cars?", or, "IF synthetics are the hot set-up, why don't the Armed Forces buy them so their vehicles will last longer?", or even, "IF synthetics work so well, why aren't people knocking down the doors of the synthetic oil manufacturers to buy their product?"

Without endorsing or condemning synthetics, let's attempt to answer these "IF" questions and let you draw your own conclusions.

Q. Why doesn't Detroit put synthetic oil in new cars?

A. Because you cannot use synthetic oil as "break-in" oil. It is just too slippery, and rings, valves, etc., will not "seat" properly. High spots left by machining processes will not wear down correctly and bearings will not take the correct "set." Even the manufacturers of synthetics say not to use their products until your new car has reached the 6,000-mile mark.

Q. Will use of a synthetic void my new-car warranty?

A. As long as the engine was broken-in with the oil the factory installed, no. To the best of our knowledge, there has not been a healthy engine that was harmed by synthetic oil as long as the specified oil change interval was followed.

Q. If it's so good, why aren't the Armed Forces using it?

A. They are, but only in Arctic areas where the unique low-temperature qualities are prerequisite for war readiness. The Armed Forces don't use it in the normal chain of supply for one reason . . . it's too expensive initially. The Armed Forces buy oil like they buy everything else, by bids. They establish performance parameters for the product they wish to buy, and the person or product with the lowest bid gets the contract. The Government specifies that the oil they buy will meet API and MIL-Spec standards of SE oil for regular automotive use. Synthetics ARE expensive to purchase initially, so when the contracting officer has a choice between two oils that both meet the specs, he must, by law, buy the one that is cheaper. API SE-rated petroleum oil retails for 75¢ to $1.30 per quart, most synthetics for $3.95 to $4.95 per quart.

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continued

The U.S. Army Mobility Equipment Research and Development Command has done extensive testing on synthetics and found that the majority of them will meet and exceed API SE and MIL Specs and has approved them for use, but, again, they can't be purchased by the Government because of their high initial cost.

Q. Why aren't more private citizens buying and using synthetics?

A. Probably for the same reason they laughed at Orville and Wilbur. People can be slow to accept advances in technology, especially when some of the first synthetics on the market were slipshod formulas pedaled by unscrupulous merchants. Because of those first bad experiences, the public has stayed away from synthetics in droves. Today, however, if you see a synthetic that is API-rated for the job you want it to do, you can be assured that you'll be getting a quality product that will function as advertised.

Q. I know synthetics are expensive to buy, so are they really worth the money?

A. Ah, yes, now that really is the most important question isn't it? OK, let's break it down like this . . . a popular brand of synthetics retails for $4.95 per quart, but is guaranteed to last for 25,000 miles or one year if you change the oil filter at each 12,500 miles and use the synthetic manufacturer's special filter. Cost for this 25,000 miles comes out to $38.75.

Conventional petroleum-based 10W-40 costs about $1.30 per quart and the oil filter is only about $3.00. HOWEVER, to get equal protection, you MUST change the oil and filter according to manufacturer's specs and most of them call for changes at no more than 6,000 miles. So, for 25,000 miles of protection, you must change oil three times, and include the initial fill of oil and a new filter at the same time. Cost? About $38!

So, we see that the costs for synthetics and petroleum oils are ABOUT the same. But there are some other factors you may wish to consider. Most synthetics claim that you will see an increase in your gasoline mileage. If, in fact, these claims are true (and we see no reason why they aren't, given a healthy engine) an average 15% savings in gas will yield a dollar savings of $75.73 if you get 28 mpg and gas costs 65¢ per gallon. If you drive a guzzler that gets only 12 mpg, a 15% savings will work out to $176.61 per year, *all figures being predicated on driving 25,000 miles per year.*

Again, if the theory behind synthetic oil functions is correct, you can save money in other ways. Since synthetics cause rings to seal better, less oil can get up to the combustion chamber and be burned, and then, theoretically, spark plugs will last longer. Since synthetics generally reduce engine operating temperatures from 20- to 50-degrees F, the chances are good that your engine will last longer, thereby saving on the potential cost of repairs.

Remember though . . . all these figures are of no consequence if you begin to use synthetic in your engine when it has 95,000 miles on it, or if it has bad seals, rings, or valve guides. Most engines are designed to operate with some sludge and varnish present, so why buy synthetics when the cheaper conventional oils will function almost as well?

Should YOU use synthetic oils and lubricants in YOUR car? Sure . . . IF you think you'll save money and IF you'll put up with the hassle of not having your brand available at your local gas station, and IF your engine is in good shape, and IF . . .

Aftermarket Oil Additives: This section was originally intended to be a long, technical treatise on the function of aftermarket oil additives normally available to the consumer through retail outlets and parts stores. That's what it was intended to be . . . however, to save some time and avoid misunderstandings, we'll just quote from a report by the U.S. Army Mobility Equipment Research and Development Command. The report is titled "CCL Report No. 3003, Automotive Engine Oil Supplements: Their Characteristics and Effectiveness." It has been approved for public release. This is the way the abstract, or brief summary of the report, reads:

"Crankcase oil additive concentrates, designed for use as an oil supplement oriented towards consumer or aftermarket applications, were investigated in an attempt to define their overall performance effectiveness. Physiochemical data was generated on eighteen oil concentrates to assist in understanding the mechanism of their reported activity. Their effectiveness, relative to dispersancy and detergency, was defined by developed laboratory techniques. The data subsequently generated revealed that many of the oil concentrates offered very marginal improvement in dispersancy and detergency whereas many created potential performance problems as a result of high foaming tendencies and increases in low temperature fluidity properties."

We'll admit this is a pretty cold way to lay it out, but that's the way it goes sometimes. Make your own decision on aftermarket oil additives . . . we know of several pro racers who wouldn't fire up an engine without them. Of course, we also know some people who save $1.98 at every oil change.

Brake horsepower increases when engine is switched from mineral oil to synthetic of same viscosity in test by Smokey Yunick. Test shows results at various rpm settings. Engine used was Chevrolet Z 28 302 cu.-in., run on dynamometer.

RPM	Petroleum Racing Oil	ALL PROOF	Horsepower Increase	% Increase
1800	72.5	80.6	8.1	11.17
2400	108	119	11	10.19
3200	171	189	18	10.53
4000	231	255	24	10.39
4800	276	300	24	8.70
5600	301	321	20	6.64

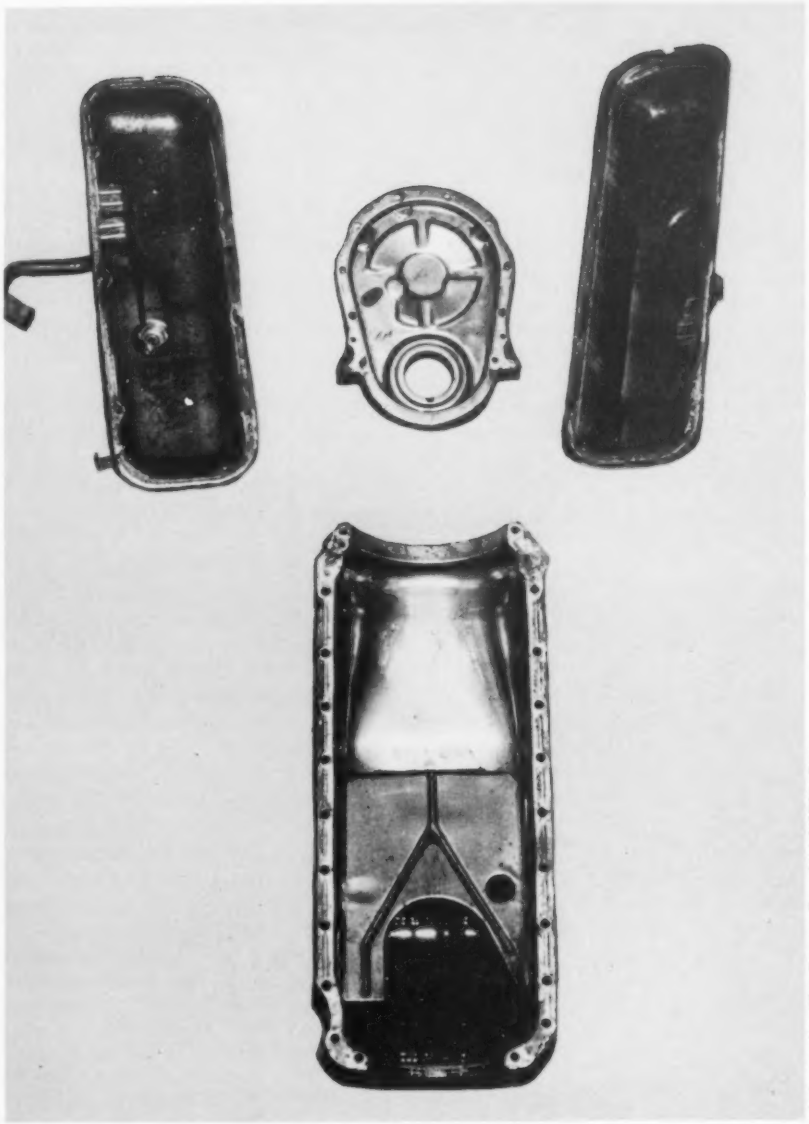
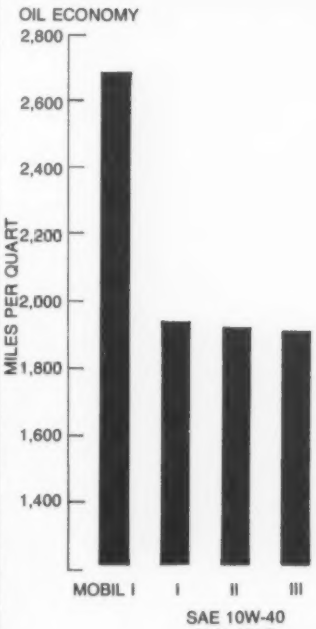


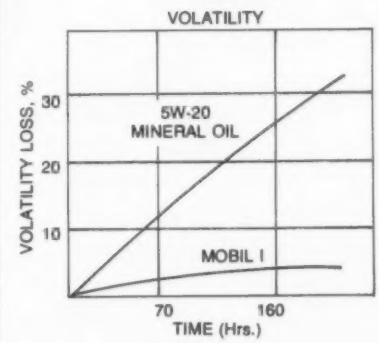
Photo courtesy Karl Dieson, Copyright AMSOIL Corp.

Pan, timing gear cover, and valve covers of synthetic-lubed engine after 70,000 miles. This does not necessarily mean that synthetics are superior, but it does indicate they have exceptional detergent ability.

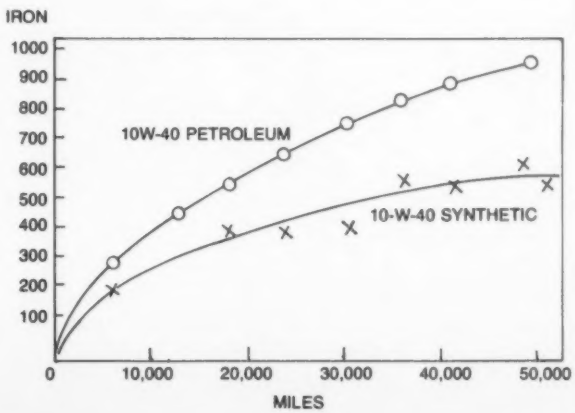
When making the decision about whether or not synthetics are in your best interests, economically, consider the ***time*** angle. Most synthetics are guaranteed for 25,000 miles OR ONE YEAR. This means that if you drive only 14,000 miles per year, you must change the synthetic (to remain under the protection of the guarantee) at the year-interval, even though the mileage half of the warranty specs is only about half-gone.

Because of this time factor, you may find that conventional oils, with their 6,000 miles/6 months change specs, may be more economical for you.





Oil-economy figures shown at top indicate that synthetic oils give up to 40 percent better oil-economy performance than mineral oils. Graph above shows why: With oil held at 300°F, mineral oil loses more than 30 percent of its volume in 200 hours. Synthetic lubricant of same viscosity has lower volatility, loses only few percent. Similarly, oil consumption in engine is decreased, as demonstrated in many road tests.



Engine-oil analysis shows less iron—indicative of engine wear—with Emery diester synthetic oil than with mineral oil. Synthetic was not drained for 50,000 miles. The mineral oil was drained at regular 6000-mile intervals.

BACKFIRE

LETTERS to the EDITOR

VAN CUSTOMIZING

LEAKING TRUNK

I've been a regular reader of DRIVER ever since the Navy recognized how great a magazine it is and made it available to all hands.

My problem is with my '72 Chevrolet Malibu four-door sedan – simply stated, my trunk leaks. I put a new weather strip on the trunk thinking that would do it – but $25 later, still no joy. I even put a rubberized sealer on the rear window and trim – but still it leaks on both sides of the trunk interior. I've looked inside the trunk for the "water source" but without success. In other words, I think I've done about everything I can think of except crawl in the trunk with a flashlight, have my wife close the trunk lid and then turn the garden hose on the trunk and hope I will be able to find the source of the leak.

Do you have any suggestions? If so, I'd sure appreciate them. I'm sure there may be a few good buddies out there who have wrestled with this same frustrating problem and have solved it. If so, I'd sure like to hear from them, too.

Keep up the good work. Those of us who work here at NAS Pensacola – the Cradle of Naval Aviation – appreciated that "right on" article you recently printed about our alcohol rehab program.

Capt. W. R. King, USN
Commanding Officer
Naval Weather Service Facility
NAS Pensacola, FL 32508

Climbing into the trunk is one way to do it, but how about putting a heavy dusting of talcum power on the trunk seal and then closing the trunk lid? When you reopen the lid, powder will transfer from the trunk seal to the trunk lid where the seal is good . . . areas where the powder does not transfer are the prime candidates for the leaking area. Use thin (⅛-inch) closed-cell foam weatherstripping, either on the trunk lid or on top of the trunk seal, to eliminate the leaks. If it takes more than one or two thin layers of foam to seal the leak, chances are good that the trunk lid is out of rig and must be loosened and readjusted.

VAN CUSTOMIZING

Having just purchased a new van, the "VANtastic" article (Dec '77) written by Capt James J. Lawrence was probably a nerve-saver, not to mention a money-saver.

My original plans were to do all the customizing myself, using a measuring tape, a sharp pencil, and a lot of luck! After hearing both pros and cons from various sources, Capt Lawrence's article convinced me to buy a set of conversion plans. It will be well worth the extra $25.

The whole article added to what I have already learned from talking with van owners and shops. My thanks to Capt Lawrence for an excellent story.

Sgt Michael J. Douglas, USA
264th Trans Co (TS)
Fort Eustis, VA 23602

"VANTASTIC"

I wish to say well done on your article "Vantastic." It was concise, well written, obviously well researched. I own a "Super Banana Yellow" 1973 Dodge van and being a vanner I appreciate seeing someone who likes to do things himself. I did all the work on my van myself and seeing the finished product after you have sweated and strained for a few months is really well worth the time and effort spent. I haven't done all the things you mentioned in your article so it will really come in handy in the future.

A couple of two-cents-type items I would like to throw in concern the extra weight you will usually pick up by adding lots of conversion stuff (couch bed, etc.). Handling becomes more of a problem because the van tends to sway a bit more. Stiffer shocks or anti-sway bars will take care of this. I put the sway bars on my van and it sure helps on the corners. Tires seem to wear better, also. The second thing is the added strain on the engine due to excess weight. This is a constant load so more attention should be paid to engine upkeep. Relieving back pressure should help also. A dual exhaust system is a good way of doing this. Check state or local laws about modifying exhaust systems though.

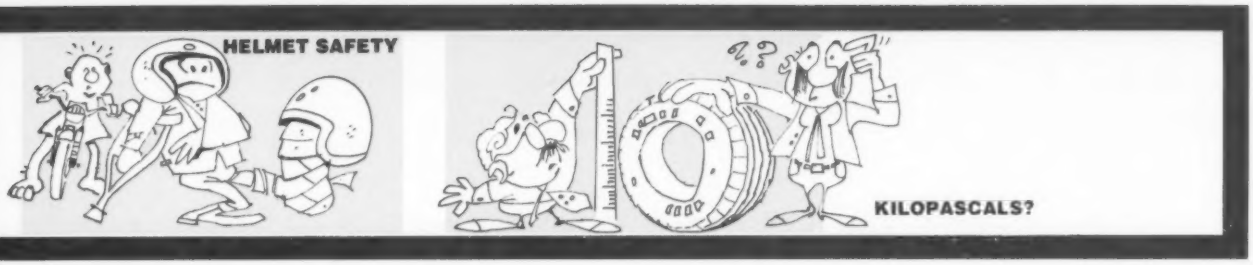
Well, that's my two cents. Good luck with the machine and "Keep On Vannin'."

Sgt Jay F. Nece
2037 Comm Sq/LGMFN
Luke AFB, AZ 85309

HELMET SAFETY

To the letter in your Oct '77 issue, written by the rider who requested that his name be withheld, I can only say "Amen." And to Norman Curtis and others who cite discomfort as the reason not to wear a helmet, I can only say "A pox on you all."

In 1970, I was pulling out of a driveway in rural Georgia riding a small dirt bike. Unfortunately, the same stretch of winding road was being used by a good old boy doing (according to the Georgia State Patrol) about 70 to 75 mph in a large American four-door sedan. He rounded the curve, slammed on his brakes, lost control, and hit me broadside.



I was wearing a helmet (at the insistence of my wife), although I very seldom wore a helmet those days. Who can get hurt on a 90 cc bike, when the speed limit is 35 mph?

The discomfort of the broken legs and shoulder were considerable. The discomfort of the thumb-sized hunks of gravel imbedded in the top of the helmet would have been even more had they been in my head instead of the fiberglass. A little sweat is nothing compared to a fractured skull! Now-a-days, I don't even ride my 10-speed without a helmet, let alone a motorcycle.

SP6 David L. Warnick, USA
Headquarters Company
304th Signal Battalion
APO San Francisco 96301

KILOPASCALS?

Your Nov '77 issue, page 19, gave the new inflation specifications as being in Kilopascals. Kilo is kilogram is 2.2 pounds, but pascal I don't know. At one time I was shipmates with a Pasquale but never a pascal. I know the various governments and scientists are inventing all kinds of new words to take the place of such words as calories and abbreviations as ATU or PSI, etc., but this??

C. E. Gronborg
HQ USAFE/DEWA
APO New York 09012

. . . And you think you've got troubles? Want to try being a Technical Editor who's just learned to cope with "kilograms per centimeter, squared" and then is forced to assume liability for kilopascals? Heck, I just figured out what USAF meant!

Deep and serious (and arduous) research on my part has determined that although "kilo" is an accepted term for kilogram, it actually refers to the designation "one thousand" and is used as a prefix to metric measurements. A kilogram is one thousand grams, a kilocycle, a kilowatt, etc., all indicators of a thousand of each unit. A kilopascal is one thousand pascals, pascal being somebody's idea of a unit of pressure over an area. You might as well get used to all these new designators . . . you know, like megagroceries and kilodollars . . . I have the feeling that they'll be with us for some time to come.

–Tech Ed

SPORTS CAR CLUBS

Thoroughly enjoyed the article "Autocrossing" in the Nov '77 issue. In 1975 we formed the Mid-Missouri Sports Car Club here at Whiteman AFB and use an inactive aircraft ramp (625,000 sq ft) on base for our autocrosses. The club is a member of the Kansas City Council of Sports Car Clubs and we alternate our events with other Council clubs. Autocrosses are staged in the Kansas City area virtually every weekend from April through October.

I am interested to know how many other Air Force bases have such clubs. A little effort is required to establish a club and receive a license to use base facilities, but the enjoyment of autocrossing is well worth the effort.

Capt Elbert J. Leuty, Jr., USAF
351 OMMS/MBA
Whiteman AFB, MO 65305

Would other bases with clubs please get in touch with Capt Leuty? And if you have special events coming up this summer, DRIVER would like to know about them.

MOTORCYCLE CLUBS

I'm a member of the Barksdale Free Spirits Motorcycle Club. We're a small but growing motorcycle club located on Barksdale AFB, La., and would like to hear from all the other motorcycle clubs throughout the Air Force.

I'm interested in establishing some "Cross Talk" among all the Air Force clubs. Exchanging ideas, sharing insight on problems and taking trips together are just a few of the benefits that all of the clubs would enjoy.

I also thought that it would be nice if DRIVER Magazine could do a special writeup on a motorcycle club each month, telling the history of the club and other items of interest. Choosing the clubs that have made the greatest contribution to motorcycle safety, the motorcycle image, and the Air Force image would possibly promote a greater interest in these areas.

If DRIVER Magazine has such information, I would like to obtain a list of all the current motorcycle clubs in the Air Force and their addresses. Thank you for such a dynamite publication.

SSG James R. Blanchette, USAF
Barksdale Free Spirits
Motorcycle Club
P.O. Box 6068
Bossier City, LA 71111

We don't have a list of all the Air Force clubs, but we'd certainly like to compile one. Would the clubs please drop us a line? DRIVER would also be happy to publish some "cross talk." Let us know what you're doing.

Address your letters to:
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AFISC/SEDD
Norton AFB CA 92409

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EMERGENCY!

LOSS OF POWER BRAKES OR POWER STEERING

To the thousands of drivers accustomed to power-assisted steering or braking, loss of either may cause instant panic. Don't let that happen to you.

- If your power steering goes out, hang in there and keep steering. It can take a lot of muscle in some cars, but you can at least steer to a safe stopping place. (Power steering goes out if a belt breaks or comes loose, which is another good reason to check belt condition frequently.)
- If the power assist for your brakes goes out, hang in there and throw some muscle to that pedal. It will take a lot more effort, but it can be done.

Proceed with caution. Get the vehicle repaired as soon as possible.